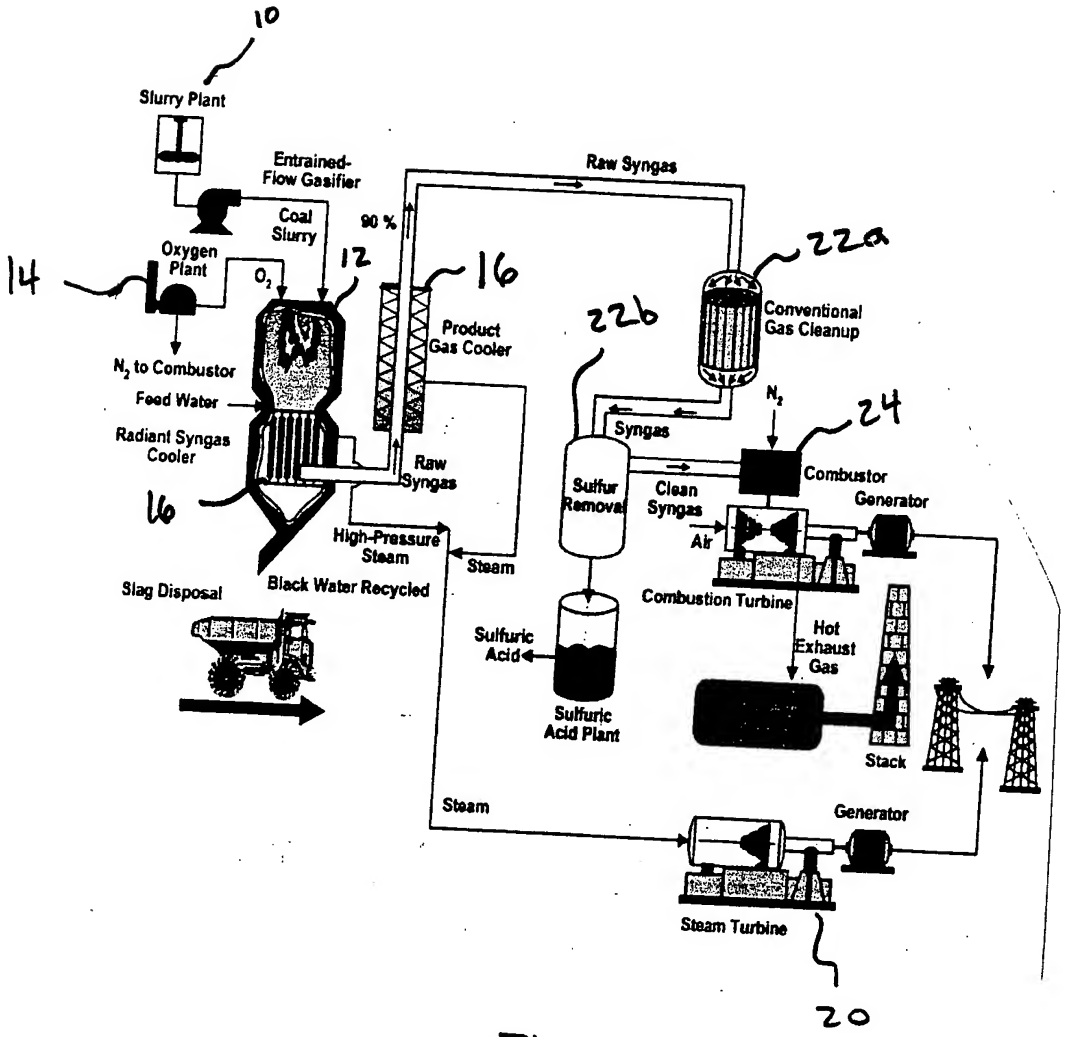
10
Slurry Plant
Entrained-Flow Gasifier
Coal Slurry
90 %
Raw Syngas
22a
Oxygen Plant
14
O_2
12
16
Product Gas Cooler
Conventional Gas Cleanup
22b
N_2 to Combustor
Feed Water
Radiant Syngas Cooler
Raw Syngas
Syngas
N_2
24
Sulfur Removal
Clean Syngas
Combustor
Generator
Air
16
High-Pressure Steam
Steam
Slag Disposal
Black Water Recycled
Combustion Turbine
Hot Exhaust Gas
Sulfuric Acid
Sulfuric Acid Plant
Stack
Steam
Generator
Steam Turbine
20

Figure 1

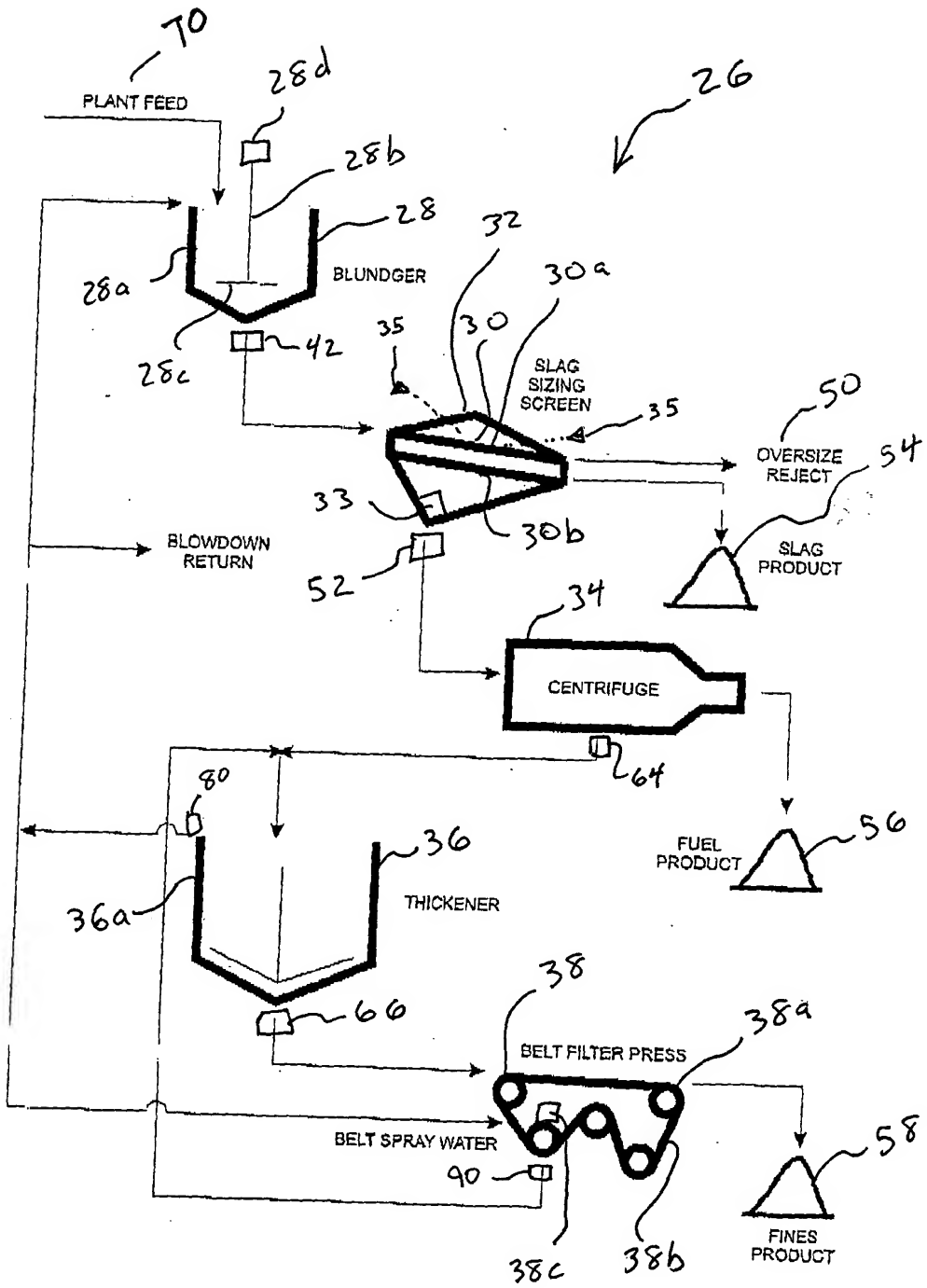
70
PLANT FEED
28d
26
28b
28
32
28a
BLUNDGER
30a
30
35
42
28c
SLAG
SIZING
SCREEN
35
50
OVERSIZE
REJECT
54
33
30b
BLOWDOWN
RETURN
SLAG
PRODUCT
52
34
CENTRIFUGE
64
80
36
FUEL
PRODUCT
56
36a
THICKENER
38
66
38a
BELT FILTER PRESS
BELT SPRAY WATER
90
58
FINES
PRODUCT
38c
38b

Figure 2

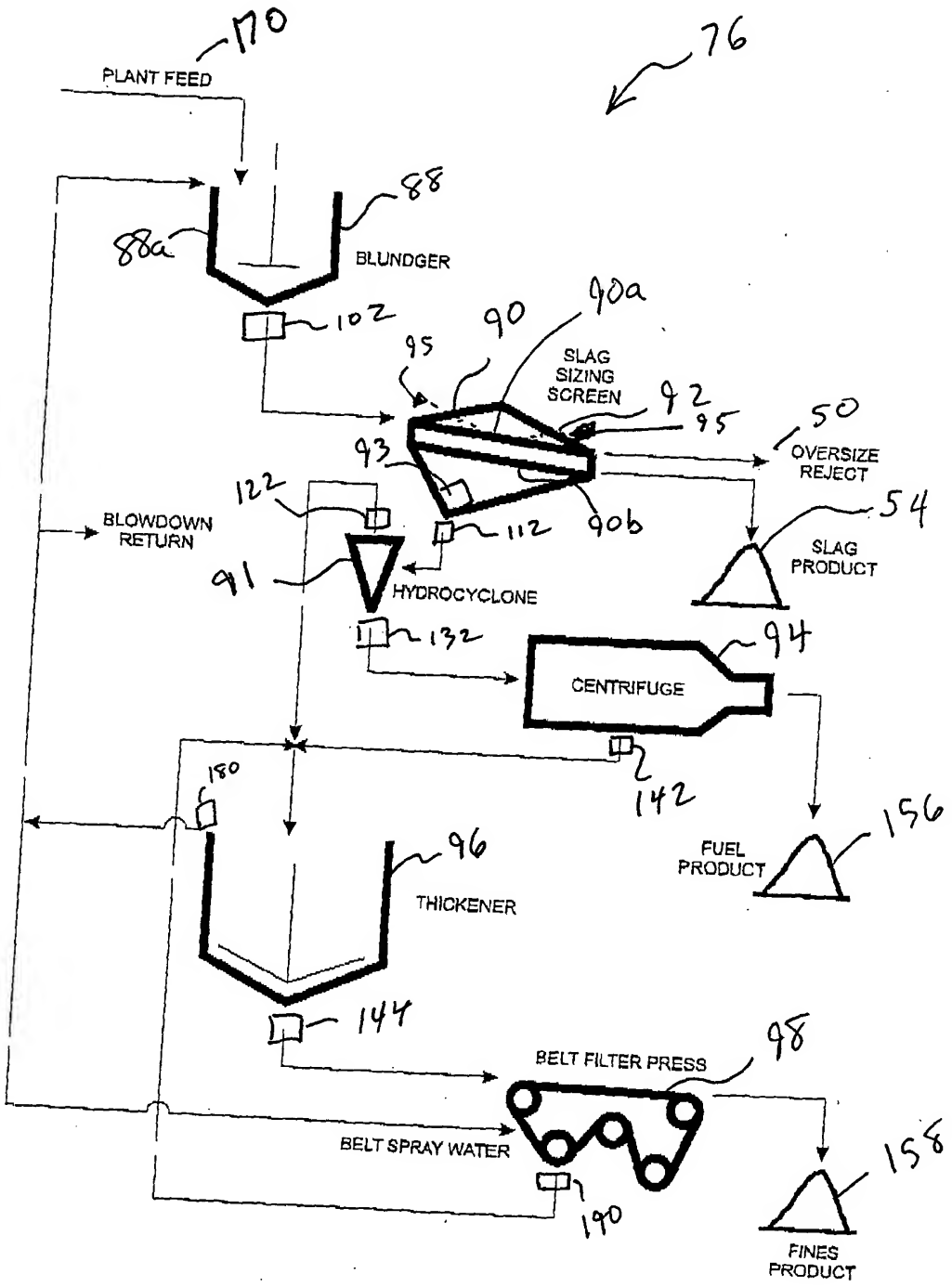
170
PLANT FEED
76
88
88a
BLUNDGER
102
90
90a
95
SLAG
SIZING
SCREEN
92
95
50
OVERSIZE
REJECT
93
122
112
90b
BLOWDOWN
RETURN
54
SLAG
PRODUCT
91
HYDROCYCLONE
132
94
CENTRIFUGE
142
180
156
FUEL
PRODUCT
96
THICKENER
144
98
BELT FILTER PRESS
BELT SPRAY WATER
190
158
FINES
PRODUCT

Figure 3

Size Fraction (inches or mesh)	Weight %	LOI (%)
+1/2	0.20	45.00
-1/2+1/4	0.30	22.55
-1/4+4	0.36	9.63
-4+6	2.64	2.09
-6+20	29.11	1.20
-20+30	4.63	60.11
-30+40	6.91	65.17
-40+50	9.42	68.74
-50+60	4.86	62.47
-60+80	6.68	56.25
-80+100	4.01	32.28
-100+200	11.53	31.42
-200+325	6.02	27.74
-325	13.32	30.55
Total	100.00	31.81

Figure 4

	Size Fraction (mesh)	Weight %	LOI (%)	LOI Distribution (%)
Second Portion –	-4+20	32.6	1.83	1.9
Third Portion –	-20+80	32.5	63.25	64.6
Fourth Portion –	-80	34.9	30.55	33.5
	Total	100	31.81	100.0

Figure 5

Size Fraction (mesh)	Size Fraction (microns)	Weight %	LOI %
12	+1410	63.4	0.15
-12+20	-1410+841	33.3	0.57
-20	-841	3.3	0.74
Total		100	0.31

Figure 6

Size Fraction (mesh)	Size Fraction (microns)	Weight %	LOI %
+20	+841	0.7	4.6
-20+80	-841+177	84.2	68.4
-80	-177	15.1	30.5
Total		100.0	63.22

Figure 7

Size Fraction (mesh)	Size Fraction (microns)	Weight %	LOI %
+100	+150	11.5	32.3
-100+200	-150+74	33.0	31.4
-200+325	-74+44	17.3	27.7
-325	-44	38.2	30.6
Total		100.0	30.5

Figure 8

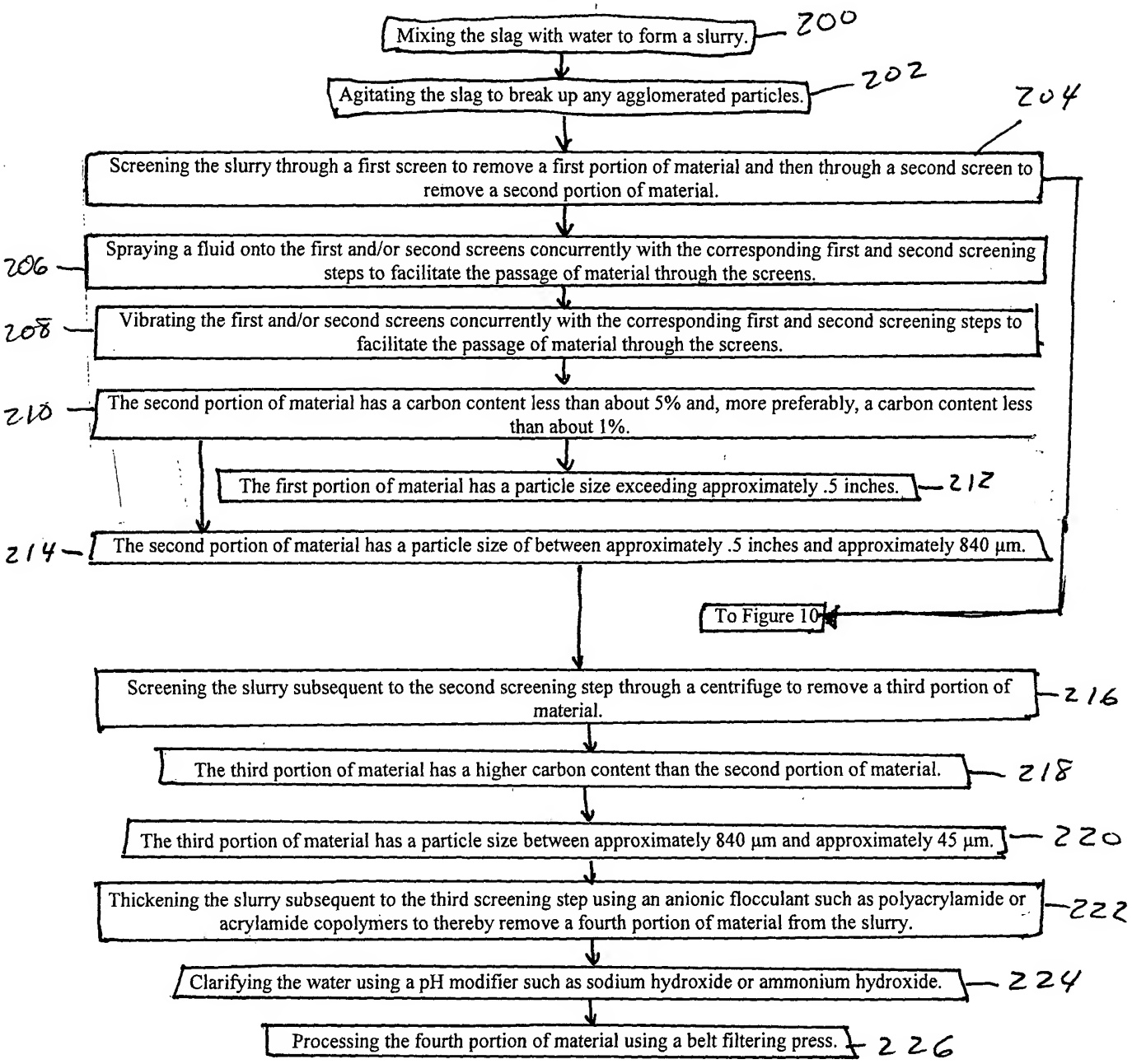
Mixing the slag with water to form a slurry.
200
Agitating the slag to break up any agglomerated particles.
202
204
Screening the slurry through a first screen to remove a first portion of material and then through a second screen to remove a second portion of material.
206
Spraying a fluid onto the first and/or second screens concurrently with the corresponding first and second screening steps to facilitate the passage of material through the screens.
208
Vibrating the first and/or second screens concurrently with the corresponding first and second screening steps to facilitate the passage of material through the screens.
210
The second portion of material has a carbon content less than about 5% and, more preferably, a carbon content less than about 1%.
The first portion of material has a particle size exceeding approximately .5 inches.
212
214
The second portion of material has a particle size of between approximately .5 inches and approximately 840 µm.
To Figure 10
Screening the slurry subsequent to the second screening step through a centrifuge to remove a third portion of material.
216
The third portion of material has a higher carbon content than the second portion of material.
218
The third portion of material has a particle size between approximately 840 µm and approximately 45 µm.
220
Thickening the slurry subsequent to the third screening step using an anionic flocculant such as polyacrylamide or acrylamide copolymers to thereby remove a fourth portion of material from the slurry.
222
Clarifying the water using a pH modifier such as sodium hydroxide or ammonium hydroxide.
224
Processing the fourth portion of material using a belt filtering press.
226

FIGURE 9

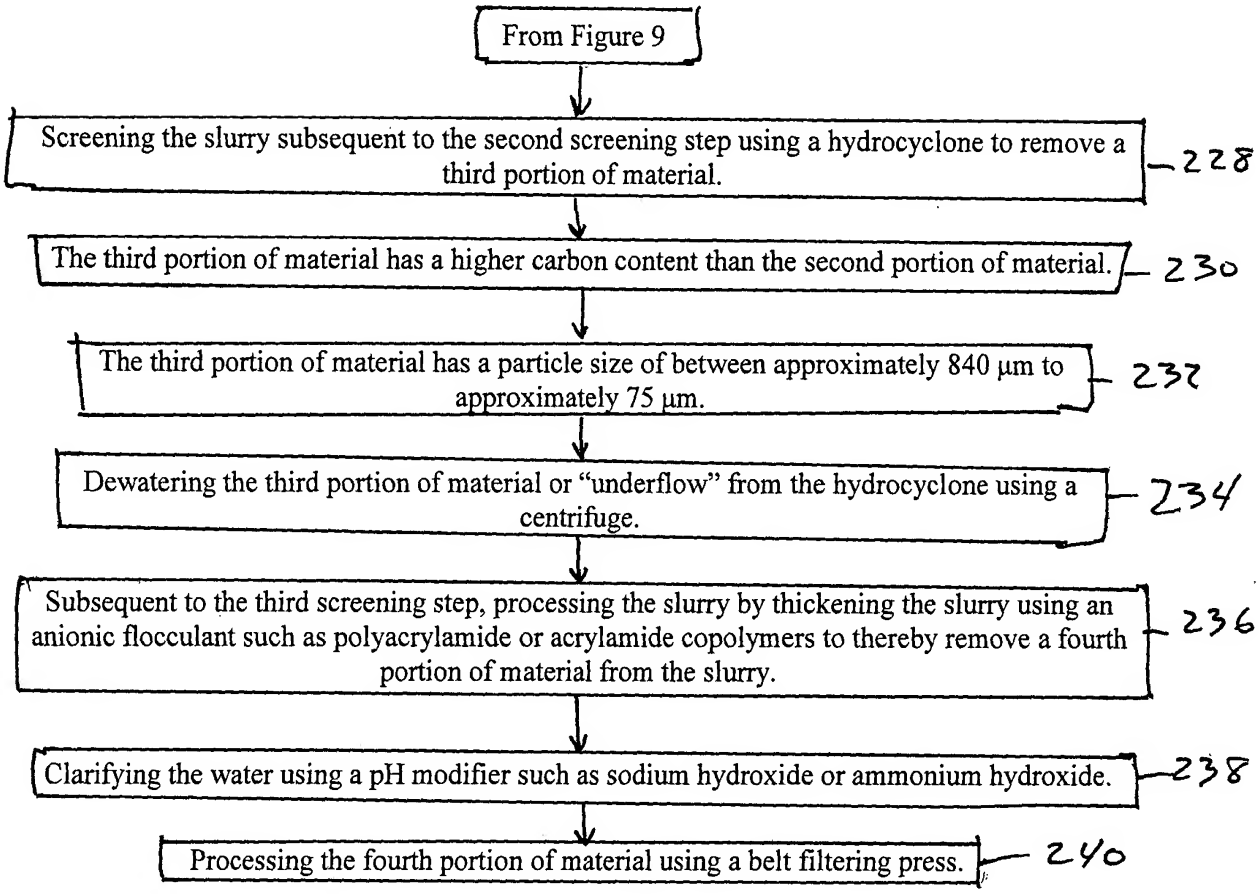
From Figure 9
Screening the slurry subsequent to the second screening step using a hydrocyclone to remove a third portion of material.
228
The third portion of material has a higher carbon content than the second portion of material.
230
The third portion of material has a particle size of between approximately 840 μm to approximately 75 μm.
232
Dewatering the third portion of material or "underflow" from the hydrocyclone using a centrifuge.
234
Subsequent to the third screening step, processing the slurry by thickening the slurry using an anionic flocculant such as polyacrylamide or acrylamide copolymers to thereby remove a fourth portion of material from the slurry.
236
Clarifying the water using a pH modifier such as sodium hydroxide or ammonium hydroxide.
238
Processing the fourth portion of material using a belt filtering press.
240

FIGURE 10